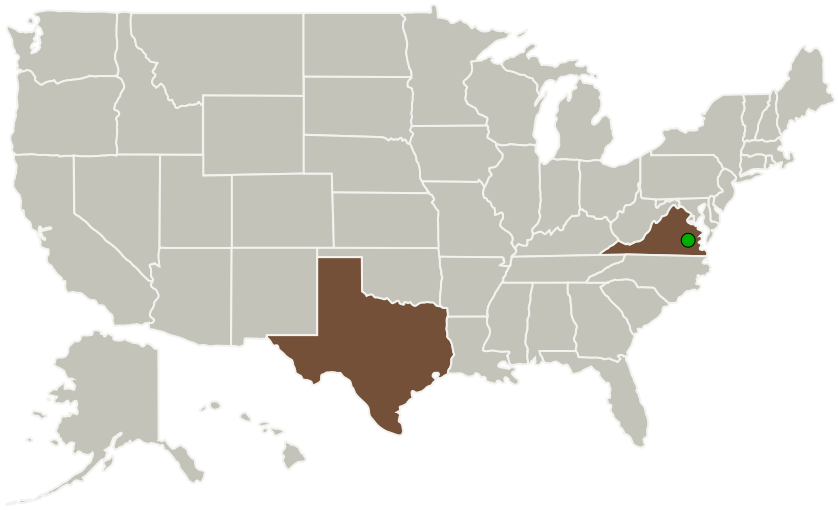
Hyper Velocity Impact - Damage Assessment System (HVI-DAS), Phase I

Completed Technology Project (2014 - 2014)

Project Introduction

A device is proposed that can track the electrical charge dispersion that is created when hyper velocity impact (HVI) occurs between two entities with a closing velocity greater than 1 km per second. This same device can measure the time of arrival of the charge wave front at transducers placed throughout the vehicle. Using the known speed of light minus the reactive effects of the skin of the vehicle on the "charge", the system can calculate the exact point of impact. Further, the nature of the charge dispersal wave front contains critical information as to the damage incurred as a result of the HVI. This information along with AE waveforms will be tested and analyzed to determine signatures for various types of damage created by HVI events.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Invocon, Inc.	Lead Organization	Industry Veteran-Owned Small Business (VOSB)	Conroe, Texas
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Hyper Velocity Impact - Damage Assessment System (HVI-DAS) Project Image

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Primary U.S. Work Locations	
Texas	Virginia

Project Transitions

June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137705)*

Images

Project Image
Hyper Velocity Impact - Damage Assessment System (HVI-DAS) Project Image
(https://techport.nasa.gov/image/131053)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Invocon, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

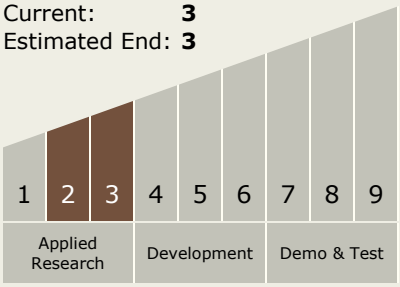
Carlos Torrez

Principal Investigator:

Doug Heermann

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



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Technology Areas

Primary:

- TX07 Exploration Destination Systems
  - TX07.3 Mission Operations and Safety
    - TX07.3.2 Integrated Flight Operations Systems

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System